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Pesticide Fact Sheet Number 47: Glycoserve

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors
Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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Washington, DC 20460

EPA

Pesticide Fact Sheet

Name of Chemical: GLYCOSERVE
Reason for Issuance:
Date Issued: March 3, 1985
Fact Sheet Number: 47

1. Description of chemical

Generic Name: Substituted Dimethyl Hydantoin
Common name: 1,3-Bis(Hydroxymethyl)-5,5-dimethylhydantoin
Trade name: Glycoserve
EPA Shaughnessy code: 115501
Chemical abstracts service (CAS) number: 273AB
Year of initial registration: 1985
Pesticide type: Disinfectant
Chemical family (e.g., carbamates) Hydantoins
U.S. and Foreign producers: Glyco

2. Use patterns and formulations

Application sites: End-use products as a preservative in paints, room deodorizers, and dishwashing detergents as a Manufacturing Use Pesticide for reformulating use as a preservative in paints, room deodorizers and detergents.
Types of formulations: Liquids
Types of Methods of application: manual
Application rates: 0.2% to 1% in paints, 0.25 to 1% in room deodorizer and detergents.
Usual carriers: water

3. Science Findings

Summary science statement: No mutagenic, or oncogenic effects are anticipated at the use dilutions recommended for the proposed uses.
Chemical Characteristics: physical state-liquid, color-water white, odor-slight formaldehyde odor, boiling point-101.2°C
Unusual handling characteristics: Protect eyes and skin when handling.

Toxicology characteristics:

Toxicology Category and value for each acute hazard.

Testing Laboratory Warf Institute

Acute Oral LD_{50}, Toxicity Category III

* LD_{50} = 2.00 to 3.65 g/kg (M)

3.00 to 5.00 g/kg (F) no signs of toxicity

Testing Laboratory: IBT

3.72 mg/kg hypoactivity, lacrimation, weakness, labored respiration.

b. Testing Laboratory: Warf Institute

*Acute inhalation toxicity category IV
LC_{50}>204 mg/L/hr gasping

c. Testing Laboratory: Food and Drug Research Lab.

LC_{50} >377.8 ug/L/4 hrs slight irritation of mucous membranes envanol nose and eyes

d. Testing Laboratory: Bio/dynamics

*Primary eye irritation Toxicity Category IV
Negative using 0.1 ml of 0.1% solution

e. Testing Laboratory: Warf Institute
*Acute Dermal

LD_{50} = >20 gm/kg

f. Testing Laboratory: Warf Institute

*Acute dermal irritation
PIS = 1.5

** Acute oral LD_{50} - rat; Warf Institute; #6051229 9/30/76 — LD_{50} = 2.0 to 3.65 g/kg(male) LD_{50} = 3.0 to 5. g/kg(female) (highest dose tested 10g/kg)

** Acute oral LD_{50}- rat; IBT; #853009420; 9/22/76 — LD_{50} = 3.720 g/kg (highest dose tested 15,380 g/kg)

Key * Test conducted using 1,3-hydroxymethyl)-5,5-dimethyl hydrontoin 44% and hydroxymethyl-5,5 dimethyl hydantoin
** = Test conducted using the product as formulated glyco

Major routes of exposure in order of toxicological significance.

** Dermal patch test - human; IBT; #8537-09670; 12/3/76	IBT - invalid Dynamac Corp. 2/25/83
** Dermal absorption - rat; EG & G Mason Research Institute; Report MRI-206-GC-83-35; 9/9/83	Body burden <1% < than 3% was absorbed and the main portion was recovered in the urine. (Note 0.1 ml = 3.15 mg) Addendum Maximum absorption in 10 hrs. 10.01528 ml = 0.4813 mg 1/2 hr. (minimal absorption) 0.02406 mg
** Patch test- human; Food and Drug Research Lab,; #18;10/11/81	10 repeated insult path test in 31 males and 171 females with 0.21 ml of test material produced negative results for sensitization
** Acute oral LD_{50} - rat; Warf Institute; #6051229; 9/30/76	LD_{50} = 2.00 to 3.65 g/kg (M) 3.00 to 5.00 g/kg (F) (no signs of toxicity)
** Mutagenic; unscheduled DNA synthesis; Lab not stated; no. MOO17;5/7/82	Positive induced a dose-related increase in the number of grains per nucleus
** Mutagenic- Ames; Litton Bionetics; # 20838; 3/78	Negative with and without activation
** Mutagenic- Ames; Microbiological Associates T 1804.502; 9/3/82	Positive for TA 100 and TA 98 with and without metabolic activation
** Mutagenic- Ames; Microbiological Associates; T 1804.502; 9/3/82	Negative for TA 1535, TA 1538 and TA 98
** Mutagenic- chinese hamster ovary in Vitro; Microbiological Assoc.; #003-560-723-2; 2/23/82	Positive; significant increase in chromosomal aberrations with and without S-9 activation
** Mutagenic- induction in mammalian cells- mice; Microbiological Assoc.; #003-561-724-7; 4/30/82	Positive with and without activation

Key * Test conducted using 1,3-hydroxymethyl)-5,5-dimethyl hydrontoin 44% and hydroxymethyl-5,5 dimethyl hydantoin
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** Mutagenic- DNA synthesis -rat; Microbiological Assoc.; #M0017; 5/7/82; Report # 25	Positive for induction of unscheduled DNA synthesis

Note: Contains up to 2% Free Formaldehyde

Chronic toxicology results, include size of data base; conclusions in each major toxicology area:

Metabolism - rat; EG & E Mason Research Institute; @206-GC-35; 9/9/83	97% recovered from treatment site 2% recovered in urine 1% recovered in tissue and feces (body burden less than 1%)
* Mutagenic Ames salmonella; Litton Bionetics; #20838; 3/78	Negative with and without activation
* 90 Day oral - rat; Food and Drug Research Lab.; #7059; 3/16/82	NOEL > 400 mg/kg (HDT). Levels tested by gavage in Sprague-Dawley strain - 0,100, 200 and 400 mg/kg/day for weeks 1-8, than 0, 100, 300 and 600 mg/kg/day for weeks 9-13.
* Mutagenic Ames salmonella mammalian microsome; Microbiological Assoc; #T1804-502; 9/3/81	Positive on tester strains TA100 and TA98 with or without metabolic activation
* Mutagenic Ames salmonella mammalian microsome; Microbiological Assoc; #003-520-723-1; 2/23/82	Negative with without metabolic activation
* Mutagenic cytogenicity - CHO cell in vitro; Microbiological Assoc; #T1721.337; 5/25/82	Positive with or without metabolic activation. Produced chromosomal aberrations

Key * Test conducted using 1,3-hydroxymethyl)-5,5-dimethyl hydrontoin 44% and hydroxymethyl-5,5 dimethyl hydantoin
** = Test conducted using the product as formulated glyco

Physiological and Biochemical Behavioral Characteristics:

Foliar absorption (if applicable). N/A
Translocation (if applicable) N/A
Mechanism of pesticidal action. Hydrolysis in water to yield free formaldehyde (which is the disinfecting agent)
Metabolism and persistence in plants and animals. N/A

Environmental Characteristics: (for indoor use only)

Adsorption and leaching in basic soil types. N/A
Microbial breakdown. N/A
Loss from photodecomposition and/or volatization. N/A
Bioaccumulation N/A
Resultant average persistence. N/A

Ecological Characteristics:

As proposed, the product provides for minimal hazard to non-target organisms and due to the low toxicity of the product no F & W precautionary toxicity statements are required.

Tolerance assessments: N/A. Registered use is not for use on food or feed stuffs.

Problems which are known to have occurred with the use of the chemical (e.g., PIMS data). None

4. Summary of Regulatory Position and Rationale:

Use, formulation, manufacturing process or geographical restrictions (including classification for restricted use). No restrictions
Unique warning statements required on labels (e.g., protective clothing requirements, restrictions regarding use around water, reentry intervals). None
Summary of risk/benefit review in cases where risk assessments were conducted. Benefits exceed risks for use of the product as a preservative in paints, room deodorizers and soft detergents.

5. Summary of major data gaps

There are no data gaps for the approved uses.

6. Contact person at EPA:

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